CONNECTICUT FORMULA/CONVERSION TABLE

FORMULAS:

Alkalinity = $\dfrac{\text{(mL of Titrant) (Acid Normality) (50,000)}}{\text{mL of sample}}$

Area = Length X Width
     = .785 X (Diameter)^2
     = 1/2 X Base X Height

Chemical Feed Pump Setting, % Stroke = $\dfrac{\text{Desired Flow X 100\%}}{\text{Maximum Flow}}$

Circumference = 3.14 X Diameter

Composite Sample Single Portion = $\dfrac{\text{(Instantaneous Flow) (Total Sample Volume)}}{\text{(Number of Portions) (Average Flow)}}$

Detention Time = $\dfrac{\text{Volume}}{\text{Flow}}$

Discharge = $\dfrac{\text{Volume}}{\text{Time}}$

Dosage, LBS/Day = mg/L X 8.34 X MGD

Efficiency = $\dfrac{\text{In-Out}}{\text{In}}$ X 100

Filter Backwash Rate = $\dfrac{\text{Flow}}{\text{Filter Area}}$

GPCD = $\dfrac{\text{GPD}}{\text{Population}}$

Hardness = $\dfrac{\text{(mL of Titrant) (1,000)}}{\text{mL of sample}}$

Horsepower = $\dfrac{\text{Flow (GPM) X Head (FT)}}{3960}$

Hydraulic Loading Rate = $\dfrac{\text{Flow}}{\text{Area}}$

% Reduction in Flow = $\dfrac{\text{(Original Flow - Reduced Flow) X 100}}{\text{Original Flow}}$

Slope = $\dfrac{\text{Drop or Rise}}{\text{Distance}}$

Surface Loading Rate = $\dfrac{\text{Flow}}{\text{Area}}$

Velocity = $\dfrac{\text{Flow}}{\text{Area}} = \dfrac{\text{Distance}}{\text{Time}}$

Volume = Length X Width X Depth
= .785 X (Diameter)^2 X Depth

Weir Overflow Rate = $\dfrac{\text{Flow}}{\text{Weir Length}}$

CONVERSION FACTORS:

7.5 GAL/CF

8.34 LBS/GAL

2.31 Feet of Head/PSI

ABBREVIATIONS:

C	Celsius
CF	Cubic Feet
CFS	Cubic Feet per Second
F	Fahrenheit
GAL	Gallons
GPM	Gallons per Minute
GPD	Gallons per Day
LBS	Pounds
mL	Mililiter
mg/L	Miligrams per Liter
MGD	Million Gallons per Day
SF	Square Feet
PPM	Parts per Million
GPG	Grains per Gallon
PSI	Pounds per Square Inch

FORMULAS:

PPM	=	mg/L (When talking about water)
1 GPG	=	17.1 PPM
1 MGD	=	1.55 CFs
1 MGD	=	694 GPM
PPM	=	$\dfrac{\text{Pounds of Chemical Added}}{8.34 \times \text{million gallons treated}}$
1 HP	=	0.746 kW

$(^{\circ}\text{C} \times 9/5) + 32 = {}^{\circ}\text{F}$

$(^{\circ}\text{F} - 32) \times 5/9 = {}^{\circ}\text{C}$